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By: **Jeffrey Hobbs, Terrill R. Keasler,** and **Chris R. McNeil**

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Short Selling Behavior and *Mad Money*

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Keywords: short sale, stock recommendations, *Mad Money*, behavioral bias, overpricing

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1. Introduction

One topic that has engendered much recent interest in the financial world is short selling. A number of studies show that short sellers on average appear to be able to predict short-term abnormal returns. The source of this "skill" is a matter of debate. For example, some statements in the popular press and by government officials assert that short selling activity tends to artificially drive down prices. Recent academic studies consider several other possibilities, including risk-bearing (cf. Ho and Stoll, 1981; Diether, Lee and Werner, 2009), liquidity provision (Grossman and Miller, 1988; Diether, Lee and Werner, 2009), and trading savvy (Boehmer, Jones and Zhang, 2008). Our study examines how short sellers react to an overpricing event arising from overoptimism on the part of some investors. If one source of short sellers' skill in predicting short-term returns is to exploit the behavioral biases of some investors, we would expect to see increased short selling following an overpricing event even after controlling for other factors previously shown to affect shorting activity.

We examine short selling following the airing of Jim Cramer's stock recommendations on *Mad Money*, a CNBC television show—an event that is widely held to give rise to overoptimism for a subset of investors. Several factors make *Mad Money* a favorable setting in which to examine short selling when there is overpricing. First, Cramer provides a copious number of buy recommendations in a typical month (over 100 made independently of viewer input). Second, *Mad Money* airs after the U.S. stock markets close, providing a clear event date, making it easier to measure a price reaction compared with other events that might cause overoptimism, such as recommendations by high profile analysts in the printed press or on the Internet. Finally, the U.S. Securities and Exchange Commission (SEC)'s Regulation SHO, which is in effect during our sampling period, enables the use of daily short selling data.

Consistent with earlier research, we find a significant abnormal return following buy recommendations made on *Mad Money* and a subsequent reversal, indicative of an overpricing event. We also report a large increase in the amount of short selling. To examine whether potentially significant overpricing events such as Cramer's buy recommendations influence the level of short selling beyond that which is already explained by factors known to influence shorting activity, we estimate panel regressions of daily shorting activity similar to Diether, Lee and Werner (2009). The panel regressions include controls for past returns, past shorting activity, stock volatility, turnover, and bid-ask spread as well as concurrent returns. We examine relative shorting (*relss*), which equals daily shorting volume divided by daily total volume, and, as an alternative, absolute measure, *Short value*, which equals the log of the market value of shares sold short for the day.

Our main finding is that there is a positive association between short selling and *Mad Money* buy recommendations, even after controlling for a number of other factors previously shown to impact shorting activity. The association between short selling and buy recommendations differs somewhat between NYSE and Nasdaq stock recommendations. For buy recommendations of NYSE stocks, where abnormal

returns are smaller than for Nasdaq stock recommendations, the coefficient estimates for a dummy variable for Cramer buys are consistently positive and significant. For Nasdaq buys, we find a stronger association between short selling and prior overnight returns (and alternately the concurrent daily return) following the recommendation. These findings support the hypothesis that at least some of the comparative skill of short sellers lies in the ability to exploit behavioral biases associated with overpricing events such as *Mad Money*.

As a robustness check, we also compare the level of short selling following buy recommendations with shorting for a matched sample based on overnight returns, as a test of whether our panel regression results are driven by higher overnight returns following a buy recommendation. In nearly all of our regression specifications, we find that shorting either increases markedly subsequent to Cramer buy recommendations or increases as a function of stock returns around Cramer recommendations, or both. Thus, even when we compare shorting behavior around *Mad Money* recommendations with other days with similar overnight returns, the "Cramer effect" remains strong. Finally, we control for earnings announcements that occur near the recommendation date and thus could potentially confound our results. We find, however, that the results remain unchanged.

Finally, we examine short selling following *Mad Money* sell recommendations. The results differ from those of buy recommendations. NYSE stock sell recommendations exhibit relatively small negative abnormal returns and little change in short selling activity. The average return for Nasdaq sells is -1.7% and accompanies an increase in short selling. In our panel regressions of daily short selling for the NYSE sample, we find no consistent association between short selling and sell recommendations. For Nasdaq stock sell recommendations, we find some evidence of a negative association between short selling and sell recommendations.

2. Literature

Several studies empirically examine the association between short selling and overpricing. Lamont and Stein (2004) show that total short interest tends to move counter-cyclically; short selling actually takes place less often in a bull market than in a bear market. The authors thus conclude that short selling does very little to correct overpricing. Subsequently, however, some evidence indicates that short selling does mitigate overpricing. Christophe, Ferri and Angel (2004) find that in the week immediately preceding earnings announcements, the stocks with the highest volume of short sales experience the worst performance afterward, particularly for those stocks with the potential for large subsequent price decreases, and attribute their finding to "informed trading" by short sellers. Kolasinski, Cao, Reed and Dhaliwal (2007) find that short sellers often profit on the market's underreaction to negative earnings surprises. Cohen, Diether and Malloy (2007) report that negative abnormal returns tend to follow an increase in shorting demand, especially for cases where the level of privately held information is high. Diether, Lee and Werner (2009) use data

mandated by the SEC to show that short sellers are more active after positive returns and are able to correctly predict when negative returns follow. Last, Boehmer, Jones and Zhang (2008) find that heavily shorted stocks underperform their counterparts, suggesting that short sellers can correctly identify overpricing.

However, there are factors apart from overpricing that help determine the level of shorting activity for different stocks. Diether, Lee and Werner (2009) note that the association between shorting and (near-term) returns can alternatively stem from short sellers' inside information, the exploitation of market frictions or investors' behavioral biases, liquidity provision to mitigate order imbalances, or temporary risk-bearing. One can explore this issue in detail by comparing the factors that determine shorting in a more general sense to those surrounding specific overpricing events. It is possible that during such events, overpricing becomes a larger factor, in which case the event itself should have some incremental impact or the returns surrounding it should become more strongly associated with short selling. It is also possible that such overpricing events are of such a substantial magnitude that other factors become relatively unimportant to the overall level of shorting. Finally, it is possible that because of the high uncertainty associated with such events, these other factors subsume any marginal effect of overpricing on the shorting.

This paper examines short selling with regard to the popular television show *Mad Money*, hosted by Jim Cramer. Several studies conclude that *Mad Money* infuses excessive optimism in many investors who follow the show, resulting in share price inflation above true underlying value. Bolster and Trahan (2009) find that buy recommendations preceded short-term gains, followed by a reversal within one month. Engelberg, Sasseville and Williams (2011) report an overnight return following Cramer's recommendations of 3% overall and nearly 7% for small-cap stocks. The authors also noted that as early as the day after a recommendation, shorting volume increases. Neumann and Kenny (2007) find that most of the first-day reaction to Cramer's recommendations actually takes place the night before, and suggest that investment professionals might be able to exploit such recommendations by short selling. Lim and Rosario (2010) find that most of Cramer's buy recommendations recently performed well, and of those that did perform well the small-cap stocks continued to perform well over the next six months. Keasler and McNeil (2010) find that a reversal takes place over the 25 trading days following the initial reaction to Cramer's recommendations, with no evidence of positive longer-term abnormal returns.

We present our study as follows. Section 3 provides background information on *Mad Money,* our sample selection process, and descriptive statistics of the companies that Cramer recommends to his audience during the sample period. Section 4 provides the results of our tests of the impact of Cramer recommendations and stock returns on short selling. In Section 5, we conduct an alternative test using a matched sample based on overnight returns, and also perform a robustness check in which we control for earnings announcements that occur near Cramer's recommendations. Section 6 concludes the paper.

3. Sample and descriptive statistics

3.1. Mad money background

On March 14, 2005, Jim Cramer's *Mad Money* premiered on CNBC. By the end of 2006, the show had become very successful and Cramer was the "network's biggest star" (see Feinberg, 2006). The recording of *Mad Money* occurs at 4:30 p.m. on weekdays, and first airs at 6:00 p.m., after the closing of the financial markets. It is re-aired later in the evening. Jim Cramer draws on 20 years of experience stock brokering and managing a successful hedge fund. The recommendations made on *Mad Money*, particularly during the show's "discussion segment," derive from Cramer's personal research. Another section of the show, the "lightning round," features fast responses to questions from callers regarding individual stocks. The overall tenor of *Mad Money* is very different from that of most current and past financial television programs; Cramer can often be seen gesturing emphatically, throwing objects such as plastic bulls and bears, shouting, and hitting buttons that trigger sound effects in the studio. According to Cramer, the primary goal of *Mad Money* is to both entertain and educate his audience.

3.2. Sample

We collect a list of *Mad Money* recommendations from TheStreet.com, which was co-founded by Jim Cramer and which publicly displays the recommendations made on *Mad Money* for a period of three months after the show date. Our sample consists of recommendations made during the 11 month period of February 2006 through December 2006. TheStreet.com identifies each *Mad Money* recommendation using the show segment during which it was made (discussion segment or lightning round) as well as its nature (sell, negative mention, positive mention or buy).

We also require that each stock for which Cramer issues a buy recommendation has sufficient data available from the CRSP and have a CRSP exchange code of either 1 (NYSE) or 3 (Nasdaq) to be included in our daily regressions. Finally, we examine only those stocks for which daily short selling data are available from the Arca, NYSE, Nasdaq or NSX exchanges.[1] The SEC's Regulation SHO required that exchanges report daily short selling activity starting January 2005 and ending August 2007.

3.3. Descriptive statistics

Our sample consists of 1,234 discussion-round buy recommendations made on *Mad Money* from February 2006 through December 2006. Of these 1,234 buy

[1] The National Stock Exchange (NSX) is an electronic stock exchange that was recently located in Chicago and is now officially located in New Jersey.

Table 1

Descriptive statistics

This table contains descriptive statistics for our sample of stocks for which *Mad Money* buy or sell recommendations occur during the period of February 2006 through December 2006. We classify the sample into four categories by recommendation and exchange listing. The table contains a separate panel for each category. *Market Cap* is in billions of $s as of the day of the recommendation. *Relss* is relative shorting (in percentage), computed as daily shorting volume divided by daily total volume. *Short value* is the log of market value of shares sold short for a day, *Spread* is a percentage and equals (ask − bid)/((ask + bid)/2). *Relss* (average), *Short value* (average), and *Spread* (average) are the daily mean computed over February 2006 through December 2006 by stock recommendation.

	Mean	Median	Lower quartile	Upper quartile	Minimum	Maximum	*N*
Panel A: NYSE buy							
Market Cap	31.92	12.06	3.50	34.80	0.01	443.41	779
Relss (average)	23.50	23.46	19.85	26.96	12.98	36.94	779
Short value (average)	16.60	16.70	15.72	17.75	9.44	19.34	779
Spread (average)	0.08	0.07	0.05	0.09	0.03	0.52	779
Panel B: Nasdaq buy							
Market Cap	23.01	1.94	0.70	23.07	0.04	294.13	455
Relss (average)	33.33	32.96	30.36	36.29	17.85	46.16	455
Short value (average)	16.44	16.12	14.74	18.14	10.47	20.62	455
Spread (average)	0.10	0.08	0.03	0.13	0.02	0.71	455
Panel C: NYSE sell							
Market Cap	24.48	10.86	3.45	24.56	0.05	200.61	161
Relss (average)	23.28	23.03	19.89	26.02	11.79	39.22	161
Short value (average)	16.48	16.69	15.79	17.37	10.37	19.17	161
Spread (average)	0.10	0.07	0.05	0.10	0.034	0.65	161
Panel D: Nasdaq sell							
Market Cap	14.74	1.80	0.56	6.81	0.05	232.79	135
Relss (average)	32.33	33.58	30.55	37.58	5.09	44.03	135
Short value (average)	16.02	16.23	14.41	17.48	9.57	19.90	135
Spread (average)	0.13	0.09	0.04	0.17	0.02	1.00	135

recommendations, 779 are for stocks listed on the NYSE, while the other 455 represent Nasdaq-listed stocks. Additionally, we examine 296 sell recommendations. Of these sell recommendations, 161 trade on the NYSE and 135 trade on Nasdaq. These recommendations yield 703 unique identification numbers from the CRSP database (Cramer recommends some stocks more than once during our sampling period).

Table 1 provides descriptive statistics for the four categories of stocks as classified by the type of recommendation (buy or sell) and by exchange listing. The descriptive statistics show that the NYSE-listed stocks in our sample tend to have greater market capitalizations, smaller bid-ask spreads (defined as ask price minus bid price divided by the average of the ask and bid—see Chung and Zhang, 2011), and

Table 2

Daily abnormal returns and short selling

This table presents average daily abnormal returns and average short selling by day for our sample of stock recommendations made on *Mad Money*. Panel A summarizes results for 779 NYSE stock buy recommendations and 455 Nasdaq stock buy recommendations. Panel B summarizes results for 161 NYSE stock sell recommendations and 135 Nasdaq stock sell recommendations. Day 0 is the day of the recommendation. *Abnormal return* is a percentage and is estimated using the market model. *CAAR* denotes cumulative average abnormal returns, accumulated beginning on day +1. *Short percentage* is computed as total shares sold short for the day as a percentage of total outstanding shares. Statistical significance of *Abnormal return* and *CAAR* is indicated by asterisks.

	(1)	(2) NYSE	(3)	(4)	(5) Nasdaq	(6)
Day	Abnormal return	CAAR	Short percentage	Abnormal return	CAAR	Short percentage
Panel A: Buy recommendations						
−20	−0.019		0.250	0.069		0.608
−15	0.101		0.262	−0.136		0.597
−10	−0.019		0.265	0.121		0.613
−5	0.053		0.260	0.434***		0.723
−4	−0.032		0.285	0.108		0.648
−3	0.082*		0.294	0.009		0.643
−2	0.036		0.289	0.252***		0.671
−1	0.200**		0.311	0.266***		0.725
0	0.301***		0.363	0.132		0.831
1	0.842***	0.842***	0.465	1.722***	1.722***	1.428
2	−0.062	0.780***	0.352	−0.119	1.603***	0.926
3	−0.148**	0.632***	0.336	−0.089	1.514***	0.844
4	0.004	0.636***	0.317	−0.303**	1.211***	0.772
5	−0.094	0.542***	0.295	−0.255***	0.956***	0.652
6	−0.095*	0.448*	0.290	−0.137	0.820**	0.625
7	−0.154***	0.294	0.289	−0.252**	0.567*	0.666
8	−0.085	0.210	0.277	−0.061	0.507	0.651
9	−0.026	0.183	0.274	−0.156	0.351	0.672
10	−0.037	0.153	0.275	−0.229	0.112	0.652
11	−0.047	0.106	0.267	−0.207**	−0.095	0.617
12	−0.059	0.047	0.285	0.120	0.025	0.610
13	−0.147***	−0.101	0.275	−0.195	−0.170	0.663
14	−0.147***	−0.248	0.265	−0.091	−0.260	0.667
15	−0.057	−0.305*	0.255	−0.209	−0.469	0.673
20	−0.022	−0.680***	0.259	−0.159	−1.396*	0.633

(*Continued*)

less shorting (relative to turnover) than do the Nasdaq-listed stocks. Our measures of *relss* are very similar to those of Diether, Lee and Werner (2009), who report averages of 23.89 for NYSE stocks and 31.33 for Nasdaq stocks.

Table 2 displays the average daily abnormal returns, cumulative average abnormal returns (CAAR), and percentage of shares sold short for each of the four

Table 2 (*continued*)

Daily abnormal returns and short selling

	(1)	(2) NYSE	(3)	(4)	(5) Nasdaq	(6)
Day	Abnormal return	CAAR	Short percentage	Abnormal return	CAAR	Short percentage
Panel B: Sell recommendations						
−20	−0.309*		0.255	−0.133		0.754
−15	−0.185		0.250	−0.007		0.635
−10	−0.014		0.258	0.135		0.583
−5	0.056		0.245	−0.069		0.622
−4	−0.415**		0.284	−0.010		0.673
−3	−0.062		0.298	0.423		0.956
−2	−0.141		0.326	0.749**		0.860
−1	−0.688*		0.383	0.017		0.802
0	0.048		0.360	−0.851		1.103
1	−0.283**	−0.283**	0.279	−1.705***	−1.705***	1.167
2	−0.072	−0.355*	0.256	−0.012	−1.717**	0.808
3	−0.070	−0.425*	0.246	−0.024	−1.741**	0.676
4	0.084	−0.341	0.267	−0.271	−2.012**	0.701
5	0.004	−0.338	0.270	−0.363	−2.376**	0.610
6	0.466***	0.128	0.280	0.294	−2.082*	0.644
7	0.085	0.213	0.294	0.173*	−1.909	0.609
8	−0.019	0.194	0.252	0.244	−1.665	0.567
9	0.006	0.200	0.307	0.314*	−1.351	0.564
10	0.226*	0.426	0.276	0.442	−0.909	0.614
11	0.094	0.520	0.236	0.052	−0.858	0.644
12	−0.095	0.425	0.239	−0.327	−1.185	0.569
13	0.329	0.754	0.263	−0.059	−1.244	0.578
14	0.217	0.971	0.248	−0.183	−1.427	0.533
15	0.217	1.188	0.243	0.340*	−1.087	0.576
20	0.025	1.298*	0.257	−0.046	−1.153	0.571

*, **, *** indicate statistical significance at the 0.10, 0.05 and 0.01 level, respectively.

recommendation/exchange categories. Panel A provides event-period data for buy recommendations, while Panel B pertains to sell recommendations. We estimate abnormal returns using the traditional market model, with the parameters estimated over trading days −125 through −26 relative to the recommendation date. Consistent with prior research, we find significant positive abnormal returns within both "buy" subsamples the day after Jim Cramer's recommendations are aired on *Mad Money*. In absolute terms, the "bump" tends to be smaller for NYSE-listed stocks (0.842% on Day +1) than for Nasdaq-listed stocks (1.722%). Also consistent with prior literature, we witness a reversal beginning on Day +2. The reversal is measured relative to the Day +1 abnormal return. For the NYSE-listed subset of stocks, almost half of the first-day CAAR disappears within five trading days and all of the first-day CAAR

disappears within 12 trading days. For the Nasdaq-listed subset, the half-reversal completes in five trading days while the full-reversal completes in ten trading days.

Additionally, we observe a spike in short selling activity around the time of the buy recommendation, most prominently on Day +1. For the NYSE-listed stocks, *Short percentage* (computed as the number of shares sold short for the day divided by total shares outstanding) averages 0.465% on Day +1, up from 0.363% for the day before. For Nasdaq-listed stocks, shorting jumps to 1.428% on Day +1, up from 0.831% and 0.725% for the preceding two days. The level of shorting tends to remain high, relative to shorting in the days leading up to the buy recommendation, for several days afterward. To summarize, the reversal following these high initial returns is strongly indicative of overpricing, while the jump in shorting on Day +1 suggests that short sellers react to it.

For sell recommendations (Panel B), we also see an increase in shorting activity, though it tends to begin a day or two earlier and is less pronounced than it is for buy recommendations. As with buy recommendations, shorting constitutes a much higher percentage of shares outstanding for Nasdaq-listed stocks than for NYSE-listed stocks. In addition, the increase in shorting activity occurs on the same days as the most negative abnormal returns, suggesting that some part of the short selling that occurs on Day +1 (after Cramer's sell recommendation) is due to bearish momentum trading.

Many of the variables that we examine are possibly correlated. Table 3 provides the correlation matrix for all of these variables. Not surprisingly, many of these correlation coefficients are significant; the shorting relates positively to recent shorting, contemporaneous returns, bid-ask spread, current and past volatility, and past trading. In addition, returns relate inversely to spread, lagged shorting, current volatility, and past trading. Not surprisingly, volatility and spread are also positively correlated. *Relss* and *Short value* relate positively and significantly. However, since both are measures of short selling, one would expect the correlation between them to be positive. Given that the correlation coefficient is only 0.13 for the NYSE sample and 0.32 for the Nasdaq subsample, we believe that the two measures are different enough to qualify as alternative dependent variables on which to conduct our analysis.

4. Panel regressions

4.1. Overview of the factors that affect shorting

Diether, Lee and Werner (2009) examine a number of variables to determine which generally affect short selling, and to what degree. These variables include current and past returns, order imbalances, bid-ask spread, current volatility, and recent volatility. In addition, they control for recent shorting activity and turnover.

For some of our shorting regressions, we include the size of the bump (the overnight return measured from the close of day $t-1$ until the open of day t). We

Table 3

Correlations

This table contains correlation coefficients for our sample of *Mad Money* stock recommendation panel regression variables. Panel A is for NYSE stocks, and Panel B for Nasdaq. Relative shorting is *relss* (number of shares shorted divided by total trading volume for a day). *Short value* equals log of market value of shares sold short for a day. *Ret* is stock return on day *t*. *Retlag* is the return for the five trading days preceding *t*. *Ret_nite* is stock return from close on $t-1$ to the open on day *t*. *Ret_day* is the return from open to close on day *t*. *Spread* is ask minus bid divided by the average of ask plus bid for day *t*. *Sigma* is high stock price minus low stock price divided by high stock price for day *t*. *Tvlag* is average turnover (trading volume divided by shares outstanding) for the five days preceding day *t*. *Tradevalulag* is the average log market value of shares traded over the prior five days. *Relsslag*, *Short value lag*, and *Sigmalag* are averages of *Relss*, *Short value*, and *Sigma* for the five preceding trading days. *p*-Values appear in parentheses below the correlation coefficient estimates.

	Relss	*Short value*	*Retlag*	*Ret*	*Ret_nite*	*Ret_day*	*Spread*	*Relsslag*	*Sigma*	*Sigmalag*	*Tvlag*	*Short value lag*	*Trade-valulag*
Panel A: NYSE													
Short value	0.132												
	(0.000)												
Retlag	0.100	0.021											
	(0.000)	(0.000)											
Ret	0.132	0.047	−0.012										
	(0.000)	(0.000)	(0.000)										
Ret_nite	0.053	0.033	−0.007	0.500									
	(0.000)	(0.000)	(0.014)	(0.000)									
Ret_day	0.120	0.034	−0.010	0.851	−0.026								
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)								
Spread	0.029	−0.290	−0.014	−0.008	0.000	−0.010							
	(0.000)	(0.000)	(0.000)	(0.005)	(0.769)	0.000							
Relsslag	0.614	0.001	0.128	−0.010	0.002	−0.013	0.037						
	(0.000)	(0.613)	(0.000)	(0.001)	(0.361)	(0.000)	(0.000)						
Sigma	0.124	0.083	−0.092	−0.022	0.009	−0.032	0.121	0.120					
	(0.000)	(0.000)	(0.000)	(0.000)	0.003	(0.000)	(0.000)	(0.000)					
Sigmalag	0.121	−0.013	−0.066	−0.003	0.058	−0.039	0.149	0.168	0.582				
	(0.000)	(0.000)	(0.000)	(0.230)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)				
Tvlag	0.087	0.080	−0.011	−0.011	0.019	−0.025	0.043	0.121	0.288	0.487			
	(0.000)	(0.000)	(0.000)	0.0003	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
Short value lag	−0.005	0.931	0.020	−0.017	0.002	−0.020	−0.305	0.045	−0.026	0.013	0.119		
	(0.108)	(0.000)	(0.000)	(0.000)	(0.481)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
Tradevalulag	−0.154	0.912	−0.010	−0.013	0.001	−0.016	−0.306	−0.195	−0.060	−0.034	0.089	0.968	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.606)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	
Nonshort value	−0.254	0.919	−0.019	−0.0048	0.011	−0.013	−0.291	−0.237	0.029	−0.066	0.044	0.908	0.950
	(0.000)	(0.000)	(0.000)	(0.135)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

(*Continued*)

Table 3 (*continued*)

Correlations

	Relss	*Short value*	*Retlag*	*Ret*	*Ret_nite*	*Ret_day*	*Spread*	*Relsslag*	*Sigma*	*Sigmalag*	*Tvlag*	*Short value lag*	*Trade-valulag*
Panel B: Nasdaq													
Short value	0.321												
	(0.000)												
Retlag	0.036	0.021											
	(0.000)	(0.000)											
Ret	0.055	0.028	−0.007										
	(0.000)	(0.000)	(0.060)										
Ret_nite	0.002	0.020	0.000	0.544									
	(0.465)	(0.000)	(0.888)	(0.000)									
Ret_day	0.063	0.019	−0.009	0.821	−0.028								
	(0.000)	(0.000)	(0.021)	(0.000)	(0.000)								
Spread	−0.171	−0.482	−0.009	−0.003	−0.004	0.000							
	(0.000)	(0.000)	(0.016)	(0.450)	(0.224)	(0.853)							
Relsslag	0.632	0.278	0.022	−0.038	−0.014	−0.036	−0.204						
	(0.000)	(0.000)	(0.000)	(0.000)	0.0002	(0.000)	(0.000)						
Sigma	0.002	−0.010	−0.058	−0.001	−0.013	0.008	0.207	0.004					
	(0.554)	(0.009)	(0.000)	(0.759)	(0.000)	(0.027)	(0.000)	(0.234)					
Sigmalag	−0.007	−0.161	−0.037	−0.002	0.034	−0.026	0.262	0.000	0.492				
	(0.067)	(0.000)	(0.000)	(0.494)	(0.000)	(0.000)	(0.000)	(0.899)	(0.000)				
Tvlag	0.020	0.284	−0.029	−0.021	0.020	−0.038	−0.081	0.038	0.193	0.443			
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
Short value lag	0.223	0.944	0.007	−0.021	−0.003	−0.023	−0.494	0.319	−0.129	−0.130	0.337		
	(0.000)	(0.000)	(0.053)	(0.000)	(0.322)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
Tradevalulag	0.102	0.928	0.003	−0.015	−0.001	−0.017	−0.465	0.132	−0.133	−0.133	0.350	0.978	
	(0.000)	(0.000)	(0.342)	(0.000)	(0.731)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	
Nonshort value	−0.014	0.937	0.011	0.011	0.020	−0.001	−0.437	0.061	−0.008	−0.165	0.296	0.914	0.946
	(0.000)	(0.000)	(0.003)	(0.005)	(0.000)	(0.748)	(0.000)	(0.000)	(0.031)	(0.000)	(0.000)	(0.000)	(0.000)

hypothesize that the association between overnight return and shorting will increase following specific events that prospective short sellers deem to result in overpricing.

4.2. Main results

To determine whether recommendations made on *Mad Money*, and the returns surrounding those recommendations, influence short selling, we estimate a series of panel regressions. Similar to Diether, Lee and Werner (2009), we control for a number of variables that have been shown in the literature to influence shorting, and we employ two-way clustering by stock and calendar date (see Thompson, 2011). We use two alternative measures of shorting as our dependent variable. "*Relss*" is the daily volume of short selling scaled by the daily volume of all trading. "*Short value*" is the natural logarithm of raw dollar volume of short sales. In those regressions for which *Short value* is the dependent variable, we include "*Nonshort value*"—total dollar volume minus the dollar volume of shorting—as an additional explanatory variable, replace lagged turnover ("*tvlag*") with "*Tradevalulag*," the average of total dollar volume over the preceding five trading days, and replace the lag of *relss* with the lag of *Short value*.

Table 4 provides the main results of our paper. We include a dummy variable that assumes a value of one on the trading day following a *Mad Money* buy recommendation ("*Buy*") or sell recommendation ("*Sell*"). To examine the effect of *Mad Money* recommendations on the association between returns and shorting in the context of overpricing, we also include interactions between the recommendation dummy and the contemporaneous return (*ret* × *Buy*) and between the recommendation dummy and overnight return (*ret_nite* × *Buy*). Further, *ret* is decomposed into the aforementioned overnight return variable (*ret_nite*) and the close-to-open return for the next day (*ret_day*), to yield further insight into the association between the timing of returns and short selling.

For Jim Cramer's buy recommendations of NYSE stocks, relative shorting relates positively to recent shorting activity, the stock's current volatility, and its concurrent as well as its recent return. Relative shorting (*relss*) relates negatively to recent turnover. The dummy variable is positive and highly significant, indicating that Cramer's buy recommendations have an effect on shorting (an increase of 1.1% to 1.2% per columns (1) and (2)) even after we control for other factors shown to be influential in the literature. Both interactions with returns are insignificant. Raw dollar shorting (*Short value*) relates similarly to these explanatory variables, with the buy recommendation dummy again positive and highly significant. The coefficients of 0.123 and 0.138 imply a 13% to 15% increase (columns (3) and (4)) in the raw market value of shares shorted (*Short value* is a log variable) that is attributable to Cramer's buy recommendation. Unlike in the *relss* regressions, both interaction terms (*ret* × *Buy* and *ret_nite* × *Buy*) are also positive and highly significant, with a 1% increase in *ret* following a buy recommendation leading to an additional 2.91%

Table 4

Panel regressions: Daily short selling

This table contains the results from panel regressions of daily short selling for our sample of *Mad Money* buy and sell stock recommendations. Estimation period is 01 Feb 2006 to 31 Dec 2006. Panel A contains results for NYSE and Nasdaq buy recommendations. Panel B contains results for NYSE and Nasdaq sell recommendations. The dependent variable is alternately *relss* (number of shares shorted divided by total trading volume) and *Short value* (log of market value of shares sold short) for day *t*. *Buy* and *Sell* are dummy variables with a value of one for the trading day following a *Mad Money* buy and sell recommendation. The regressions include stock and day dummy variables. *T-statistics* appear in parentheses below the coefficient estimates (based on standard errors robust to heteroskedasticity and clustering by day and by stock).

	NYSE (1) *Relss*	NYSE (2) *Relss*	NYSE (3) *Short value*	NYSE (4) *Short value*	Nasdaq (5) *Relss*	Nasdaq (6) *Relss*	Nasdaq (7) *Short value*	Nasdaq (8) *Short value*
Panel A: Buy recommendations								
Retlag	0.118	0.118	0.910	0.909	0.057	0.057	0.480	0.476
	(7.77)***	(7.65)***	(10.21)***	(10.20)***	(4.38)***	(4.35)***	(7.72)***	(7.61)***
Ret	0.788		4.905		0.361		2.336	
	(17.94)***		(18.73)***		(11.12)***		(14.46)***	
Ret_nite		0.637		4.670		0.094		1.681
		(9.67)***		(12.19)***		(2.56)**		(7.54)***
Ret_day		0.838		4.968		0.476		2.631
		(15.91)***		(16.62)***		(12.24)***		(13.44)***
Buy	0.011	0.012	0.138	0.123	−0.000	0.000	0.118	0.068
	(3.55)***	(3.40)***	(7.70)***	(5.97)***	(−0.02)	(0.04)	(4.24)***	(2.65)***
Ret × *Buy*	−0.228		2.870		0.266		5.607	
	(−1.21)		(3.21)***		(2.60)***		(7.56)***	
Ret_nite × *Buy*		−0.229		5.077		0.484		7.825
		(−0.79)		(2.99)***		(4.22)***		(8.76)***
Spread	0.199	0.192	0.642	0.666	−1.614	−1.756	−15.040	−15.073
	(0.67)	(0.64)	(0.42)	(0.43)	(−2.84)***	(−3.08)***	(−4.65)***	(−4.64)***

(*Continued*)

Table 4 (*continued*)

Panel regressions: Daily short selling

	NYSE (1) *Relss*	NYSE (2) *Relss*	NYSE (3) *Short value*	NYSE (4) *Short value*	Nasdaq (5) *Relss*	Nasdaq (6) *Relss*	Nasdaq (7) *Short value*	Nasdaq (8) *Short value*
Relsslag	0.649	0.649			0.699	0.700		
	(49.94)***	(49.94)***			(40.61)***	(40.54)***		
Sigma	0.553	0.549	12.831	12.819	0.121	0.111	7.903	7.860
	(10.46)***	(10.33)***	(19.29)***	(19.22)***	(2.83)***	(2.59)***	(21.14)***	(20.95)***
Sigmalag	−0.012	−0.001	−4.790	−4.780	0.331	0.349	−3.923	−3.872
	(−0.12)	(−0.01)	(−6.71)***	(−6.70)***	(3.76)***	(3.95)***	(−7.15)***	(−7.05)***
Tvlag	−0.207	−0.209			−0.155	−0.160		
	(−2.53)**	(−2.58)***			(−2.74)***	(−2.79)***		
Tradevalulag			−0.403	−0.403			−0.579	−0.579
			(−13.19)***	(−13.16)***			(−13.16)***	(−13.14)***
Short value lag								
			0.734	0.734			0.883	0.884
			(44.36)***	(44.32)***			(28.53)***	(28.52)***
Nonshort value			0.494	0.494			0.592	0.592
			(16.71)***	(16.65)***			(30.27)***	(30.13)***
Observations	81,656	81,656	81,656	81,656	50,035	49,899	49,901	49,899
R^2	0.262	0.262	0.524	0.524	0.279	0.282	0.628	0.629

(*Continued*)

Table 4 (*continued*)

Panel regressions: Daily short selling

Ret is stock return on day *t*. *Retlag* is the return for the five trading days preceding *t*. *Ret_nite* is stock return from close on $t-1$ to the open on day *t*. *Ret_day* is the return from open to close on day *t*. *Spread* is ask minus bid divided by the average of ask plus bid for day *t*. *Sigma* is high stock price minus low stock price divided by high stock price for day *t*. *Tvlag* is average turnover (trading volume divided by shares outstanding) for the five days preceding day *t*. *Tradevalulag* is the average log market value of shares traded over the prior five days. *Nonshort value* is log market value of nonshort sell trading on day *t*. *Relsslag, Short valuelag,* and *sigmalag* are averages of *Relss, Short value* and *sigma* for the five preceding trading days.

	NYSE (1) *Relss*	NYSE (2) *Relss*	NYSE (3) *Short value*	NYSE (4) *Short value*	Nasdaq (5) *Relss*	Nasdaq (6) *Relss*	Nasdaq (7) *Short value*	Nasdaq (8) *Short value*
Panel B: Sell recommendations								
Retlag	0.077	0.077	0.603	0.604	0.048	0.048	0.432	0.431
	(4.44)***	(4.35)***	(5.46)***	(5.46)***	(3.71)***	(3.71)***	(6.41)***	(6.32)***
Ret	0.689		4.363		0.326		2.038	
	(12.85)***		(14.39)***		(8.60)***		(10.45)***	
Ret_nite		0.410		3.452		0.149		1.552
		(5.24)***		(7.47)***		(3.76)***		(5.73)***
Ret_day		0.793		4.657		0.405		2.253
		(12.23)***		(13.17)***		(8.43)***		(9.47)***
Sell	−0.002	−0.002	−0.003	0.004	−0.017	−0.018	−0.025	−0.030
	(−0.35)	(−0.32)	(−0.06)	(0.09)	(−2.36)**	(−2.58)***	(−0.68)	(−0.81)
Ret × *Sell*	0.011		−1.816		−0.138		−1.699	
	(0.03)		(−0.90)		(−1.71)*		(−3.40)***	
Ret_nite × *Sell*		0.514		4.189		−0.148		−2.130
		(1.59)		(1.85)*		(−1.85)*		(−3.21)***
Spread	−0.169	−0.151	−4.070	−4.035	−1.364	−1.519	−17.254	−17.283
	(−0.28)	(−0.25)	(−1.38)	(−1.38)	(−2.44)**	(−2.84)***	(−3.49)***	(−3.48)***

(*Continued*)

Table 4 (*continued*)

Panel regressions: Daily short selling

	NYSE (1) *Relss*	NYSE (2) *Relss*	NYSE (3) *Short value*	NYSE (4) *Short value*	Nasdaq (5) *Relss*	Nasdaq (6) *Relss*	Nasdaq (7) *Short value*	Nasdaq (8) *Short value*
Relsslag	0.663	0.663			0.707	0.707		
	(40.75)***	(40.82)***			(37.21)***	(37.13)***		
Sigma	0.484	0.475	11.642	11.603	0.090	0.080	6.962	6.904
	(5.82)***	(5.81)***	(11.37)***	(11.41)***	(1.77)*	(1.53)	(13.71)***	(13.45)***
Sigmalag	−0.025	−0.000	−5.721	−5.642	0.304	0.307	−3.185	−3.154
	(−0.22)	(−0.00)	(−6.69)***	(−6.58)***	(2.65)***	(2.67)***	(−4.55)***	(−4.51)***
Tvlag	−0.278	−0.279			−0.213	−0.219		
	(−1.91)*	(−1.93)*			(−3.24)***	(−3.15)***		
Tradevalulag								
			−0.446	−0.448			−0.591	−0.592
			(−10.14)***	(−10.14)***			(−11.52)***	(−11.54)***
Short value lag								
			0.772	0.772			0.873	0.874
			(31.64)***	(31.63)***			(23.01)***	(23.01)***
Nonshort value								
			0.533	0.535			0.635	0.635
			(16.02)***	(16.04)***			(30.33)***	(30.31)***
Observations	29,588	29,588	29,587	29,587	21,848	21,784	21,785	21,784
R^2	0.267	0.268	0.546	0.546	0.285	0.286	0.655	0.655

*, **, *** indicate statistical significance at the 0.10, 0.05 and 0.01 level, respectively.

increase in shorting above its normal (nonrecommendation) effect and a 1% increase in overnight return leading to a 5.21% increase.

For the Nasdaq subsample of *Mad Money* buy recommendations, *relss* again relates positively to concurrent return, past return, concurrent volatility, and recent shorting and negatively to recent turnover. Relative shorting also corresponds positively to recent volatility and negatively to spread. For *relss*, the buy recommendation dummy is insignificant, but both interactions between the dummy and concurrent returns are positive and highly significant. When *Short value* is the modeled response variable, the results are similar, though recent volatility switches sign and the recommendation dummy becomes positive and highly significant. All interactions remain positive and highly significant. Thus a *Mad Money* buy recommendation leads to an increase in dollar shorting volume of 7–12.5%, while a 1% increase in the day's return leads to an additional increase of roughly 5.8% above its normal effect, and a 1% increase in overnight return leads to an increase of about 8.1% above its normal effect.[2]

For sell recommendations (Panel B of Table 4), the level of shorting relates similarly to the control variables as it did for buy recommendations. Within the NYSE subsample, the sell recommendation dummy is everywhere insignificant, and the interactions between *Sell* and event period returns are generally insignificant. Within the Nasdaq subsample, *Sell* is a negative and significant predictor of *relss*, though it relates insignificantly to *Short value*. The interaction terms are negative and marginally to highly significant.

Overall, we conclude that Table 4 supports the hypothesis that the mere existence of a *Mad Money* buy recommendation ties closely to an increase in short selling. Thus, it appears that at least part of short sellers' skill derives from an ability to exploit overpricing events such as Jim Cramer's buy recommendations. We interpret the positive association between shorting and the recommendation dummy as indicative that Cramer does have an effect incremental to factors that affect short selling. The positive association between the dummy and contemporaneous returns is indicative that those returns become even more determinative of shorting when they immediately follow buy recommendations.

5. Robustness

5.1. Robustness check 1: Matching on the basis of overnight return

Our results have shown that the returns immediately following buy recommendations on *Mad Money* generally have an influence on shorting. However, one concern might be that we have not adequately controlled for the fact that the average overnight returns immediately following recommendations differ from those

[2] Because *Short value* is the natural log of shorting volume, the conversion of the coefficient into raw dollar value shorted is: coefficient $= \ln(1+r)$, where r is the percent change in the shorting volume.

on other days. To address the concern, we match each observation in our sample of Buy recommendations to the day (for the same stock) from the period February 2006 through December 2006 that most closely matches its post-recommendation overnight return (the matching day must fall outside of days -4 through $+6$, relative to Cramer's recommendation). If the stock does not experience a return within 10% of its overnight return[3] on any other nonexcluded day of the year, we substitute the closest match from another stock in our overall sample within the same exchange. In most cases the second step was not necessary; we were able to match roughly 85% of buy recommendations to the same stock.

Table 5 shows the results of our matched-sample experiment, estimated using ordinary least squares (OLS), in which the variable "*Buy*" takes a value of one if the observation is a *Mad Money* recommendation and zero if it is from the overnight return based matched sample. For buy recommendations of NYSE stocks, *relss* relates positively and significantly to the open-to-close (*ret_day*) return and (alternatively) to the close-to-close return (*ret*). It relates insignificantly to overnight return (*ret_nite*), and positively to average lagged shorting. The coefficients on the recommendation day dummy and its interactions with *ret* and overnight returns are positive but insignificant. In two unreported regressions where the interaction term was dropped, the buy recommendation dummy became marginally significant. For Nasdaq buy recommendation regressions on *relss*, lagged shorting is again significantly negative, whereas the coefficients on concurrent volatility and concurrent return are insignificant. However, both of the return interaction terms are positive and significant at the 1% level.

When *Short value* is used as the dependent variable instead of *relss* (with non-shorting volume included as a control variable), the coefficients on spread, lagged shorting, concurrent volatility, and nonshorting volume are all positive and significant for the NYSE subsample. The coefficients on recent volatility and recent trading volume are negative and significant. More notably for our purposes, the buy recommendation dummy is significant at the 1% level, and its interactions with the overnight and next day returns are positive but insignificant. For the Nasdaq subsample regression on *Short value*, spread and the recommendation dummy become insignificant as in Table 4, while both interactions between the recommendation dummy and concurrent returns remain positive and become significant at the 1% level.

Overall, we interpret the dummy and return interaction coefficients from Table 5 as being supportive of the hypothesis that *Mad Money* recommendations have an influence on shorting incremental to that which is determined by known factors, while matching to control for overnight returns. Generally, the results from Table 4 are robust to the results of the matched sample exercise (with the possible exception of

[3] That is, the absolute value of matching day *ret_nite* minus recommendation *ret_nite*, all divided by the absolute value of recommendation *ret_nite*, must be less than or equal to 10%.

Table 5

Matching comparison OLS regressions of daily shorting

This table contains the results from pooled OLS regressions of short selling for the day following a *Mad Money* buy recommendations and also for matching observations. Matching is done on overnight return (*ret_nite*). For additional details about matching, please see the text. The dependent variable is alternately *relss* (number of shares shorted divided by total trading volume) and *Short value* (log of market value of shares sold short) for the day. *Buy* is a dummy variable with a value of one for the trading day following a *Mad Money* buy recommendation. For other variable descriptions, see Table 4. *T-statistics* appear in parentheses below the coefficient estimates (based on standard errors robust to heteroskedasticity and clustering by stock).

	NYSE (1) *Relss*	NYSE (2) *Relss*	NYSE (3) *Short value*	NYSE (4) *Short value*	Nasdaq (5) *Relss*	Nasdaq (6) *Relss*	Nasdaq (7) *Short value*	Nasdaq (8) *Short value*
Intercept	0.048	0.048	1.096	1.076	0.068	0.069	1.258	1.181
	(6.16)***	(5.97)***	(5.65)***	(5.43)***	(5.07)***	(5.14)***	(7.45)***	(6.95)***
Retlag	−0.029	−0.026	0.316	0.324	0.008	−0.007	0.457	0.355
	(−0.65)	(−0.57)	(1.33)	(1.38)	(0.14)	(−0.14)	(1.76)*	(1.37)
Ret	0.501		4.568		0.089		1.975	
	(2.93)***		(6.26)***		(0.93)		(3.82)***	
Ret_nite		0.225		4.275		−0.084		2.469
		(1.15)		(4.29)***		(−0.72)		(3.46)***
Ret_day		0.801		5.208		0.416		2.913
		(7.12)***		(9.34)***		(3.52)***		(4.91)***
Buy	0.006	0.005	0.074	0.067	−0.003	−0.005	0.031	0.019
	(1.37)	(1.04)	(3.20)***	(2.68)***	(−0.43)	(−0.78)	(1.02)	(0.60)
Ret × *Buy*	0.123		1.516		0.544		3.607	
	(0.49)		(1.45)		(4.20)***		(5.31)***	
Ret_nite × *Buy*		0.234		2.508		0.646		4.029
		(0.73)		(1.51)		(4.18)***		(4.70)***
Spread	2.611	3.098	13.795	14.687	−2.559	−1.961	−18.813	−16.248
	(1.18)	(1.38)	(1.87)*	(2.04)**	(−1.98)**	(−1.60)	(−1.37)	(−1.24)

(*Continued*)

Table 5 (*continued*)

Matching comparison OLS regressions of daily shorting

	NYSE (1) *Relss*	NYSE (2) *Relss*	NYSE (3) *Short value*	NYSE (4) *Short value*	Nasdaq (5) *Relss*	Nasdaq (6) *Relss*	Nasdaq (7) *Short value*	Nasdaq (8) *Short value*
Relsslag	0.808	0.810			0.825	0.819		
	(26.22)***	(26.41)***			(24.72)***	(24.73)***		
Sigma	0.397	0.472	7.345	7.456	−0.032	0.041	3.881	3.932
	(2.19)**	(2.58)**	(6.42)***	(6.70)***	(−0.16)	(0.20)	(3.53)***	(3.56)***
Sigmalag	−0.313	−0.300	−7.495	−7.680	−0.127	−0.101	−5.325	−5.697
	(−1.22)	(−1.18)	(−5.36)***	(−5.46)***	(−0.40)	(−0.32)	(−3.55)***	(−3.71)***
Tvlag	−0.225	−0.228			0.064	0.066		
	(−1.09)	(−1.14)			(0.24)	(0.25)		
Tradevalulag			−0.647	−0.638			−0.928	−0.889
			(−12.49)***	(−12.23)***			(−15.11)***	(−13.34)***
Short value lag			0.925	0.922			1.116	1.102
			(25.71)***	(25.70)***			(22.53)***	(21.77)***
Nonshort value			0.667	0.662			0.773	0.750
			(21.13)***	(20.78)***			(23.32)***	(20.09)***
Observations	1,558	1,558	1,558	1,558	910	910	910	910
R^2	0.447	0.451	0.915	0.915	0.453	0.453	0.959	0.959

*, **, *** indicate statistical significance at the 0.10, 0.05 and 0.01 level, respectively.

the *relss* regressions for the NYSE subsample). Where the recommendation dummy is positive and significant, we interpret Cramer's recommendations as an inducement to sell short, above and beyond several other important factors. Where the interaction terms are positive and significant, we interpret Cramer's recommendations as making the subsequent returns an even more important factor in the decision to short the stock.

5.2. Robustness check 2: Earnings announcements

It is possible that there are confounding news events occurring around the time of Jim Cramer's buy recommendations. One potential concern is that earnings announcements could motivate Cramer to issue recommendations, which could affect the degree of shorting as well as our measures of current and recent returns and control variables. With specific regard to short selling, Christophe, Ferri and Angel (2004) find significant effects from earnings announcements occurring over the preceding five trading days that also relate to subsequent abnormal returns. To examine whether our results are robust to their findings, we download firm-level earnings announcement data from Bloomberg[4] and estimate panel regressions similar to Table 4 but with a refined dummy variable ("*BuyNoEarn*") for buy recommendations that are uncontaminated by contemporaneous earnings announcements (we classify a recommendation as uncontaminated if we can ascertain that the trading day immediately following it does not fall within days $(-5, +2)$ of an earnings announcement).

Table 6 displays the results for our sample of *Mad Money* buy recommendations. Of the 1,234 buy recommendations in our initial sample, 1,137 had sufficient earnings announcement data to determine whether the recommendations were contaminated. Of those 1,137 recommendations, 217 occurred within $(-5, +2)$ trading days of an earnings announcement.

The results turn out to be very similar to those in Table 4. When we regress on relative shorting (*relss*), the *BuyNoEarn* recommendation dummy is positive and significant for the NYSE-listed stocks, while the interaction terms are positive but insignificant. For the Nasdaq-listed subsample of stocks, the interaction terms are positive and highly significant while *BuyNoEarn* is positive but insignificant. When we estimate our regressions on *Short value*, both the redefined buy recommendation dummy and the interactions with return are positive and highly significant for the NYSE as well as the Nasdaq-listed stocks. The other variables have similar coefficients and significance as in Table 4; for example, current and recent return, current and recent volatility, and recent shorting are all positive and highly significant predictors of both *relss* and *Short value*.

[4] There is some evidence that the Bloomberg database provides more accurate information on earnings announcements than does IBES (see, e.g., Barber, De George, Lehavy and Trueman, 2011).

Table 6

Panel regressions of daily shorting: No earnings announcement contamination

This table contains the results from panel regressions of daily short selling for our sample of *Mad Money* buy recommendations. Estimation period is 01 Feb 2006 to 31 Dec 2006. The dependent variable is alternately *relss* (number of shares shorted divided by total trading volume) and *Short value* (log of market value of shares sold short) for day *t*. *BuyNoEarn* is a dummy variable with a value of one for the trading day following a *Mad Money* buy recommendation that does not fall within −5, +2 trading days of an earnings announcement. For other variable descriptions, see Table 4. The regressions include stock and day dummy variables. *T-statistics* appear in parentheses below the coefficient estimates (based on standard errors robust to heteroskedasticity and clustering by day and by stock).

	NYSE (1) *Relss*	NYSE (2) *Relss*	NYSE (3) *Short value*	NYSE (4) *Short value*	Nasdaq (5) *Relss*	Nasdaq (6) *Relss*	Nasdaq (7) *Short value*	Nasdaq (8) *Short value*
Retlag	0.119	0.118	0.915	0.914	0.057	0.057	0.482	0.478
	(7.77)***	(7.66)***	(10.26)***	(10.25)***	(4.39)***	(4.37)***	(7.77)***	(7.67)***
Ret	0.784		4.935		0.362		2.366	
	(18.11)***		(18.88)***		(11.16)***		(14.68)***	
Ret_nite		0.625		4.779		0.101		1.798
		(9.68)***		(12.61)***		(2.74)***		(8.15)***
Ret_day		0.838		4.974		0.476		2.626
		(15.90)***		(16.61)***		(12.22)***		(13.38)***
BuyNoEarn	0.007	0.006	0.107	0.082	0.001	0.002	0.106	0.066
	(2.43)**	(2.19)**	(5.88)***	(4.50)***	(0.18)	(0.39)	(3.64)***	(2.27)**
Ret × *BuyNoEarn*	0.059		3.810		0.278		5.456	
	(0.43)		(3.85)***		(2.64)***		(6.62)***	
Ret_nite × *BuyNoEarn*		0.288		7.520		0.424		7.282
		(1.62)		(7.37)***		(3.43)***		(7.22)***
Spread	0.198	0.192	0.608	0.637	−1.611	−1.759	−14.956	−15.045
	(0.66)	(0.64)	(0.39)	(0.41)	(−2.83)***	(−3.08)***	(−4.62)***	(−4.63)***

(*Continued*)

Table 6 (*continued*)

Panel regressions of daily shorting: No earnings announcement contamination

	NYSE (1) *Relss*	NYSE (2) *Relss*	NYSE (3) *Short value*	NYSE (4) *Short value*	Nasdaq (5) *Relss*	Nasdaq (6) *Relss*	Nasdaq (7) *Short value*	Nasdaq (8) *Short value*
Relsslag	0.649	0.649			0.699	0.700		
	(49.95)***	(49.93)***			(40.62)***	(40.55)***		
Sigma	0.552	0.548	12.835	12.818	0.121	0.113	7.881	7.843
	(10.46)***	(10.31)***	(19.27)***	(19.20)***	(2.84)***	(2.62)***	(20.98)***	(20.88)***
Sigmalag	−0.011	−0.000	−4.773	−4.771	0.331	0.349	−3.911	−3.862
	(−0.11)	(−0.00)	(−6.70)***	(−6.70)***	(3.76)***	(3.95)***	(−7.14)***	(−7.05)***
Tvlag	−0.208	−0.210			−0.155	−0.160		
	(−2.54)**	(−2.59)***			(−2.74)***	(−2.79)***		
Tradevalulag			−0.404	−0.404			−0.580	−0.581
			(−13.22)***	(−13.20)***			(−13.23)***	(−13.23)***
Short value lag			0.735	0.735			0.884	0.884
			(44.25)***	(44.21)***			(28.60)***	(28.60)***
Nonshort value			0.496	0.496			0.594	0.595
			(16.78)***	(16.72)***			(30.47)***	(30.38)***
Observations	81,656	81,656	81,656	81,656	50,035	49,899	49,901	49,899
R^2	0.262	0.262	0.524	0.524	0.279	0.282	0.628	0.628

*, **, *** indicate statistical significance at the 0.10, 0.05 and 0.01 level, respectively.

We interpret the main results from Table 6 as being consistent with those of Table 4. Cramer's effect on short sellers largely relates to buy recommendations, and that effect appears to be robust to earnings announcements as well as to other control variables included in the regressions. Thus it appears that the existence of a Cramer buy recommendation incrementally increases the level of short selling while the effect of returns on shorting strengthens.

6. Conclusions

We examine 1,234 discussion segment buy recommendations issued on Jim Cramer's *Mad Money* television program from February 2006 through December 2006. Consistent with prior research, we find that the recommended stocks enjoy a positive abnormal return in the short-run, followed quickly by a reversal (negative abnormal returns) for both NYSE- and Nasdaq-listed sample stocks. We also show that these stocks experience an increase in short selling the day after the recommendation.

We examine Cramer's buy recommendations across two dimensions—we measure the importance of the recommendation itself as well as the importance of the post-recommendation return on short selling. We control for several factors that are known to generally influence short selling. These factors include stock returns over the recent past, recent turnover of the company's stock, the stock's volatility both concurrently and over the recent past, the stock's bid-ask spread, and recent short selling activity, following Diether, Lee and Werner (2009). In a series of panel regressions, we find that the existence of a Cramer buy recommendation increases shorting activity beyond that which is explained by the other factors. Additionally, the association between post-recommendation stock returns and shorting strengthens.

We include a further robustness check by matching our sample of *Mad Money* recommendations to a sample of nonrecommendation days by overnight return. The results are similar to those of the panel regressions. Last, we examine whether Jim Cramer's "recommendation effect" is robust to earnings announcements occurring around the same time. The results remain very similar to those of the panel regressions from Table 4.

Alternatively, we examine *Mad Money* sell recommendations, and find that they are generally less deterministic of short selling than are buy recommendations. Thus, the main effect of *Mad Money* on shorting appears to come from buy recommendations. In addition, we conclude that the stronger (more positive) association between returns and shorting following a buy recommendation lends support to the hypothesis that short sellers' comparative skill includes the ability to exploit behavioral biases that result in the overpricing of Cramer-recommended stocks.

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